

**Request to Archive  
With The National Centers for Environmental Information  
For Deep Space Climate Observatory (DSCOVR) Space Weather Data  
Provided by NOAA/NWS/SWPC**

**2013-02-08**

This information will be used by NCEI to conduct an appraisal and make a decision on the request.

**1. Who is the primary point of contact for this request?**

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**2. Name the organization or group responsible for creating the dataset.**

NOAA/NWS Space Weather Prediction Center (SWPC)

**3. Provide an overview summarizing the scope of data you want to archive. Describe the outputs, data variables, including their measurement resolution and coverage.**

The Deep Space Climate OBServatory (DSCOVR) satellite will be located at the L1 point. The primary space weather instrument is the PlasMag sensor complement consisting of a magnetometer (MAG), which will measure the local vector magnetic field and, a Faraday Cup (FC), which will measure the solar wind proton/alpha bulk properties (wind speed, density and temperature). The PlasMag data will be used for monitoring solar wind conditions in order to provide forecasts and nowcasts to SWPC customers. The PlasMag data will also be made available to scientists for sensor cal/val and for research purposes. DSCOVR is scheduled to launch in 1QFY15 with an Initial Operating Capability in 2QFY15.

**Datasets:**

1 - Real-time Observatory Data(also know as virtual channel 0 (VC0) data - VC0 data are raw telemetry acquired from numerous ground antenna sites located worldwide. SWPC will acquire and package the VCO data into time sequenced day [TBD] files each consisting of the CCSDS packets within a NetCDF-4 [TBD] wrapper. The VC0 data rate is 20 kbps with an with an effective data volume (file size) of not greater than 216 MB/day. The file specification for the VC0 day file is [TBD]

2 - Stored Observatory Data (VC1) - VC1 data are raw telemetry acquired by NASA. VC1 data will be acquired for periods of up to 4 hours per day. SWPC will acquire and package the VC1 data into time sequenced day [TBD] files each consisting of the CCSDS packets within a NetCDF-4 [TBD] wrapper. The VC1 data rate is 20 kbps [TBD] with an effective data volume (file size) of not greater than 40 MB/day. The file specification for the VC1 day file is [TBD].

3 - Space Weather Data Products - The Space Weather Data Products consist of Level 1b and Level 2+ products created by SWPC from the VC0 and VC1 raw telemetry. Space Weather Data Products are provided as day files [TBD] in NetCDF-4 format [TBD]. Volume is unknown at this time but estimated to be of order 50 MB/day [TBD]. The file specification for the Space Weather Data Products day file is [TBD]. Note: Level 1b data are Unpacked,

reformatted, and re-sampled Level 0 data with all calibration data and all supplemental information to be used in subsequent processing appended. Radiometric and geometric correction applied to produce parameters in physical units. Data generally presented as full space/time resolution.

4 - Metadata - Periodically SWPC will provide NGDC with relevant metadata information (calibration tables, test data, instrument and satellite status records, and other relevant documentation. The metadata files will be provided in XML format. Data volumes are unknown at this time but are expected to be small [TBD].

**4. What is the time period covered by the dataset? (YYYY-MM-DD, YYYY-MM or YYYY)**

From 2015-06-01

Ongoing as continuous updates to the data record

**5. Edition or version number(s) of the dataset:**

Preliminary

**6. Describe the level to which the data are processed. For example, are these unprocessed raw observations, derived parameters, quality controlled or inter-calibrated data, etc.?**

Both unprocessed data and processed space weather products will be included in the archive. The VC0 and VC1 daily files [TBD] will be archived and made available, as is. Space Weather Data Products will be archived but subject to change as an integral part of data stewardship. Previous versions of the data will be maintained as needed. Inter-calibration with similar environmental products from the existing NASA ACE and other available spacecraft may be performed periodically. Relevant metadata records and information will also be included.

**7. Approximate date when the dataset was or will be released to the public:**

2015-06-01

**8. Who are the expected users of the archived data? How will the archived data be used?**

1. The Operational Space Weather Community, in particular the Space Weather Prediction Center at NOAA and the instrument teams at Goddard who will be monitoring the instrument health and status, including long-term calibration.
2. The heliophysics research community, including scientists at national laboratories and universities seeking to better understanding Space Weather phenomena and societal impacts.

**9. Has the dataset undergone user evaluation and/or an independent review process? Did NCEI participate in design reviews?**

Predecessor dataset from the NASA Advanced Composition Explorer (ACE) satellite is widely used for space weather operations and research.

**10. Describe the dataset's relationship to other archived datasets, such as earlier versions or related source data. If this is a new version, how does it improve upon the previous version(s)?**

DSCOVR processed data is similar to other satellite space weather datasets (GOES & POES) archived within NGDC. The Real-time Observatory Data (VC0) and Stored Observatory Data (VC1) day files [TBD] are provided by SWPC and archived/disseminated "as is" for data recovery and reprocessing within SWPC. The GSFC science team also requires access to the VC0 and VC1 data products.

**11. List the input datasets and ancillary information used to produce the data.**

Spacecraft orbit and attitude data may be embedded within the L0-2 products [TBD]. If not, then these data need to be included or referenced in the metadata [TBD]. Other metadata-like information includes ATBDs, calibration reports,

data format specification, instrument/spacecraft status indicators, and other relevant documentation.

**12. List web pages and other links that provide information on the data.**

NGDC/STP will create the official metadata record for DSCOVR in accordance with ISO 19115. It would also be useful to create a metadata record compliant with the NASA Space Physics Archive Search and Extract (SPASE) the latter of which is more broadly used in the space physics community [TBD].

**13. List the kinds of documents, metadata and code that are available for archiving. For example, data format specifications, user guides, algorithm documentation, metadata compliant with a standard such as ISO 19115, source code, platform/instrument metadata, data/process flow diagrams, etc.**

1. Yes. URL is [TBD]

**14. Indicate the data file format(s).**

1. netCDF-4
2. XML

**15. Are the data files compressed?**

No

**16. Provide details on how the files are named and how they are organized (e.g., file\_name\_pattern\_YYYYMM.tar in monthly aggregations).**

Recommend adopting the GOES-R filenames convention [TBD]. Example:

"or\_mag\_dscovr\_syyyyymmddhhmmss\_eyyyyyymmddhhmmss\_cyyyyymmddhhmmss.nc"

Reference: GOES-R Product Definition and Users' Guide (PUG), Revision B.1, Paragraph 3, dated 17 Dec 12 (or current version, if applicable)

**17. Explain how to access sample data files and/or a file listing for previewing. If it is not available now, when will it be available?**

Public access to all DSCOVR data will be provided by the NGDC Extract (NEXT) system.

Reference: [https://intranet.ngdc.noaa.gov/wiki/index.php?title=Next\\_Project](https://intranet.ngdc.noaa.gov/wiki/index.php?title=Next_Project)  
(NGDC Internal Wiki)

**18. What is the total data volume to be submitted?**

**Continuous Data: data volume rate for a continuous data production.**

Total Data Volume Rate: 300MB per Day

Data File Frequency: 1 per Day

Data Production Start: 2015-04-01

**19. Are later updates, revisions or replacement files anticipated? If so, explain the conditions for submitting these additional data to the archive.**

The DSCOVR L2+ Data Products will be re-processed as needed to enhance data quality. Previous versions will be maintained as required [TBD].

**20. Describe the server that will connect to the ingest server at NCEI for submitting the data.**

Physical Location: Boulder, CO  
System Name: Space Weather Prediction Center  
System Owner: DOC/NOAA/NWS > National Weather Service, NOAA, U.S.  
Department of Commerce  
Additional Information: Reference: SWPC-NGDC Interconnection Security Agreement,  
dated Sept 2012

**21. What are the possible methods for submitting the data to NCEI? Select all that apply.**

TBD - NGDC Common Ingest System [TBD]

**22. Identify how you would like NCEI to distribute the data. Web access support depends on the resources available for the dataset.**

1. Unknown

**23. Will there be any distribution, usage, or other restrictions that apply to the data in the archive?**

No known constraints apply to the data.

**24. Discuss the rationale for archiving the dataset and the anticipated benefits. Mention any risks associated with not archiving the dataset at NCEI.**

DSCOVR is NOAA's space weather sentinel satellite at the L1 Lagrangian location at approximately 240 earth radii. Archived data will be used for instrument cal/val, evaluating new space weather products, and for scientific research.

**25. Are the data archived at another facility or are there plans to do so? Please explain.**

No

**26. Is there an existing agreement or requirement driving this request to archive? Have you already contacted someone at NCEI?**

Reference LOA between NGDC and OSD for the Archive, Access, and Assessment of Solar-Wind Data from the Deep Space Climate Observatory (DSCOVR), effective 31 Jan 2013.

Reference also NAO 212-15, "Management of Environmental Data and Information"

**27. Do you have a data management plan for your data?**

No

**28. Have funds been allocated to archive the data at NCEI?**

DSCOVR Program Office provides full funding for the Archive, Access and Assessment of this dataset.

**29. Identify the affiliated research project, its sponsor, and any project/grant ID as applicable.**

Deep Space Climate Observatory (DSCOVR)

**30. Is there a desired deadline for NCEI to archive and provide access to the data?**

Archive by: 2015-06-30

Accessible by:

**31. Add any other pertinent information for this request.**

None

